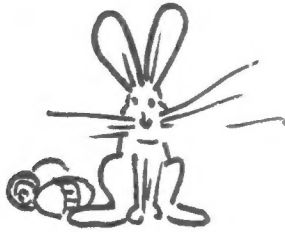


CATS

CAPITOL AREA TIMEX/SINCLAIR
USERS GROUP

NEWSLETTER

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April, 1986
Vol. 4, No 1

* * * CONTENTS * * *

MTERM - MSCRIPT transfer.....2	Beginner's Corner.....6
Tape Dubbing.....2	DOMSDOS for 1000 & 2068!.....7
QL RS-232?.....3	Mortgage Amortization.....8
T/S 2068/Spectrum Down Under..3	Modem Musings.....10
FIND Routine for Programs.....4	Hacking MSCRIPT.....11

From the Editor

Come to the Fair!

The Timex/Sinclair Users Group of Cincinnati and ATSU are hosting the Midwest Timex/Sinclair Computerfest on May 3rd and 4th, at the Ramada Inn on I-75 in Sharonville. Representatives of almost all current T/S vendors will be there, as well as fellow computerists from coast to coast. Commercial room rates are available to attendees, and admission will be reasonable. Write to: The Midwest T/S Computerfest, 3832 Watterson Ave., Cincinnati, OH 45227.

And don't forget the Timonium Hamfest on April 6, if you get this in time. It's the one show I can get excited over - let me know if you're going, or if you went.

2068 Repair into the Future

As the expiration of the statutory three year requirement for repair of Timex 2068s draws near, CATS has taken steps to ensure a supply of the one IC chip that is not commercially available. Thanks to generous support by two CATS members, the club will be purchasing 100 2068 SCLD chips, to establish an independent supply of this critical component. The club will be able to sell them for \$18.00 in singles, or \$15.00 in quantities over 5. Once Timex stops service, I'll be able to test chips in my socketed 2068 at the hardware meetings, and keep 'em ticking.

Other Hardware News

As mentioned elsewhere, Ed Grey and Zebra still have some stocks of the Timex MODEM boards. Each of these is a tremendous value, and you owe it to yourself to try telecommunications.

On a related front, the T/S UG of Cincinnati has published, and put in public domain, a BBS program for the 2068. It works beautifully. I've edited it somewhat to improve its readability, and will be sure to donate it to the club library tape. I've already transferred one copy via MODEM to another user, and I'm also working to get a translation for the 1000.

If you have a GP-100 or Gorilla Banana printer, you may be interested in a replacement character set EPROM that provides true decenders. I've seen a small sample, and it's a 100% improvement over the original. Available for \$29.95 US, from Wilanta Arts, 6943 Barrisdale Dr., Mississauga, Ont L5N 2H5. 1-416-858-9298.

Freebees

Newsnet is a BBS type service, that offers a free demo. Dial 731-2051, press carriage return (enter) twice upon connect, and respond to the "Service" Prompt with "NET". "Sign on" appears next, to which you reply "ID FREEDEMO". Password is "NEWSNET" Have fun!

We need articles - If you are using your MODEM, write it up! Information on how Compuserve has helped you, etc., is needed by the rest of us! Please write!

Meetings

The hardware group is really cooking. A variety of projects, from Sam's disk drive repair to Jerry's 32K RAM board are underway or completed. Now, if we could just get one of the solder jockeys to tell us about it, I'd be happy. (HINT) For the general meeting, we discussed the SCLD buy, and had a frank discussion of Piracy. The consensus was that we would intensify our policing of the tape dubbing operations at each meeting, and re-affirm the club policy of distributing only public domain programs. There was a minority view that Piracy was acceptable as a preview of a program, provided useful programs are then bought from a supplier, or when programs are not available commercially.

Next Meeting

We'll be back on the second Saturday again, with a hardware meeting at 11:00 AM. I'll be bringing the MODEM boards I've rescued, and we'll be building cable sets for them. At the general meeting, Tom may be able to demo AERCO's CPM. See you there!

By Jim MacKenzie

MTERM to MSCRIPT and Back!

If you've got MTERM II, Keep your buffer open when first getting on these things. That way you can study what happened after you get thrown off. To transfer the buffer to print out through MSCRIPT, note the buffer length, exit to BASIC, and SAVE "B" CODE 26710, buffer length. Now reload MSCRIPT, exit to BASIC, and load the code to the text area using Dohaney's SAVE/LOAD utilities.

To send MSCRIPT documents via MTERM, SAVE the document using Dohaney's utility. Note the document length, and LOAD MTERM II. Clear the buffer, exit to BASIC, and open up the program area with DIM A\$(document length). This expands variables, not program area, so some judicious POKEing is necessary. POKE 23627,PEEK 23641:POKE 23628,PEEK 23642 will do the trick. Now load the text with LOAD "" CODE 26710, and re-enter MTERM.

Some BBS systems require a line feed after each line. If so you will have to insert them before you leave MSCRIPT. I tried and failed to transfer a document to a BBS on the West Coast - unfamiliar with their requirements, I guess.

I apologize for making several errors in my last column. The best recorder is made by Phillips' and is sold in Great Britain. The G. Russel loader device doesn't amplify because it doesn't need to, it shapes the signal. The Sony HF is probably good enough for our purposes, and they are available at Drug Fair, Penguin Feather, and other stores. Finally I owe an apology to the authors of BSOS and WORM for trying to use their programs in our library. Their programs are still for sale by T-S Horizons for about \$15.00. It was my mistake, and was not intentional.

Fortunately I have the Westridge modem with MTERM/T program. The Westridge modem sends and receives programs, so this should make things easier for all of us to dub programs. However I'll need to buy the Mini Xmod program to make the modem send and receive programs.

I am sending letters to most of the other user groups and organizations offering to trade programs with them. With any luck we can expect to be getting some new material in our library.

The library still needs your programs so keep them coming. I will be donating some programs that I have been writing, and I hope that more of you will too.

Contributors

- Gene Carbonneau
- Mark Fisher
- Walter Hattery
- L.I.S.T.
- Jim MacKenzie
- Al Strauss
- Harvey Taylor
- Vancouver TSUG
- George White

From now on I will name the programs rather than number them. I was very chagrined to see how mixed up my numbers were in the library list. Following are some new programs available from our library:

206 Side A

'1' PERIL 6:09 14387 B 55 148
Sailing adventure with display.

'2' SHIFT ROTATE DEM 3:26 7628 B 55 193
MC skew demonstration.

206 Side B

'AMARI' 2:06 4314 B 3388
Ancient African game.

'CALENDAR' 4:41 10499 B 55 82
Calendar, time, and biorhythms.

'TIC' 2:02 4182 B 55 42
Tic tac toe.

207 Side A

'COPYCAT' 0:53 1378 B 55 104
Keyboard practice.

'F.P. DEMO' 0:52 1342 B 55 188
By Ian Logan

'BU.42' 4:17 9617 B 55 198
Las Vegas blackjack.

'INTERP' 2:10 4391 B 55 121
Forth simulator with RPN.

OFFICIALDOM

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Editor	Mark Fisher
Production	Sarah Fisher

DEADLINE DATES

Newsletter	Meeting
	April 12
April 19	May 10
May 17	June 14
June 21	July 12

A complete list of current CATS library tapes is available from Jim Mackenzie (As soon as Mike comes up with the 2068 list.): See "Tape Dubbing."

Please contact me about any library business for the 1000 or 2068.

Jim Mackenzie 301-495-9139

700 Erie Ave. Apt 3, Takoma Park, MD 20912

Playing with Electricity

Or - I thought that they said the QL had an RS232 port.

By Harvey Taylor

Vancouver Sinclair UG

726 West 17th

Vancouver, BC V5Z 1T9

There is a problem with the serial ports on the QL. Sinclair calls them full, bidirectional RS-232 interfaces & one would hope that meant everything it was supposed to, but Sinclair cheapness has struck a low blow. Instead of doing the proper thing and using a full UART, Sinclair uses the 8049 Intelligent Peripheral Controller (IPC) for input and part of a custom Undifferentiated Logic Array (ULA) for output.

The problem arises from the fact that the 8049 has a lot to do and cannot watch the input line all the time. It is thus liable to miss characters. To get around this Sinclair has implemented the DTR pin; when the 8049 is busy it pulls DTR low. Any hardware wishing to talk to the QL has to monitor DTR. Most MODEMs are not set up to do this; consequently most MODEMs show a lot of errors.

A further problem arises from the fact that, while baud rate and parity are under program control, the number of stop bits is fixed at two. Most North American BBS systems use one. These factors make it difficult to set up any of the simpler kinds of MODEMs, such as Steve Ciarcia's TMS99532 based project.

My reason for writing this is to search out any solutions other people have tried in trying to circumvent these restrictions. If you have a MODEM working on a QL with any degree of success, drop me a line.

Here is what I have tried. My first attempt was simply to stick an ultra simple TMS99532 MODEM on the serial ports. This resulted in such a high level of errors in reception and transmission that I was unable to log on to any local BBS. (Sigh)

My second attempt was to design a slightly more complicated MODEM incorporating two UARTs. One UART was set to two stop bits and 300 baud like the QL, the other set to the parameters of whatever BBS I was trying to connect to. Once data was available on one UART, the data available pin would go high, triggering a one shot strobe to the write pin on the other UART as well as clearing the data available flip-flop on the first. This still didn't connect.

My third attempt was to utilize the DTR line as well as the data available pin on the second UART to strobe the data into the first UART which ran at 9600 baud. The effect of this is to use the first UART as a one byte buffer. Surprisingly this shortcut works to a degree. Now, however, the original board is so hacked up that I will have to build another. At the present the device is still too unreliable to implement Xmodem.

It would seem that the next level would be to design a smart buffered MODEM which is capable of monitoring the DTR line on the QL. This will involve an extensive project with a dedicated controller chip like the Z8 or suchlike. I've not yet started work on such a device, but, coincidentally, the two QL

MODEMs for sale in England incorporate a form of buffering between the MODEM and the QL.

If you have any luck in this endeavour, let me know!

HT

[Tom Bent says there is an i/f available from England @ \$50 to correct this problem. MF]

TS2068 / SPECTRUM

DOWN UNDER

by George White

If your computer's memory is clear from 58300 to 65290 (most are) you can now experience April First in Australia by entering the program listed below.

Save the program to tape before running to insure that the data statements have been entered correctly. After running, the special effect can be called with RANDOMIZE USR 58300. The semicolon at the end of line 40 is important.

```
*
10 FOR i=58300 TO 58357
20 READ a
30 POKE i,a
40 PRINT PEEK i;" * ";
50 NEXT i
100 DATA 33,0,64,17,10,252,229,1,0,24,
197,175,6,8,78,203,1,48,2,203,199,
15,16,247,18,35,27,193,11,120,177,
32,233
110 DATA 1,0,3,17,10,255,126,18,35,27,
11,120,177,32,247
120 DATA 209,33,11,228,1,0,27,237,176,
201
150 PRINT FLASH 1;AT 18,4;" WELCOME TO
AUSTRALIA "
160 PAUSE 150
170 RANDOMIZE USR 58300
180 PAUSE 0
```

FIND Routine

or, Where did that X\$ come from?

Dear CATS Members,

Recently, I was helping translate SODA (Small Optical Design Aid, soon to be available free from Jonathan Vanderwall) from Radio Shack to Sinclair BASIC. In order to cope with its "spaghetti" code, I wrote a short BASIC program to serve as the utility that most computer operating systems have, a "FIND" command. It worked well and it enabled me to finish the translation of SODA, but it was incredibly slow. Upon completing work on the SODA program, I set about writing a machine code "FIND" routine. I wish that I had taken the time to do it earlier because it is about 1000 times faster. It is very useful in working on large programs and I would like to offer it to all CATS members.

Figures 1 and 2 are the BASIC part of the routine including the instructions in the REM statements and the REM statement where the machine code is located. Figure 3 is the loader that loads the MC into the REM statement in line 9994. This can be deleted once the MC is in the REM statement.

Figures 4 through 7 list the program in Assembly Language and the Hexcode.

A few notes on installing the program are in order. Note the "?" after the line number in line no. 9990. No, the T/S 9990 is not in doubt about the line number, a character code that it does not recognize has been poked in there. It tells the MC that the end of the program has been reached. To do this the easiest way, enter this line as the first line in the 9990 listing and enter a space after the line number and before the "REM". Then, as an immediate command, enter "POKE 23714,0" (Actually, the address is the system variable "PROB" plus 1). The line may then be moved to any location, but be careful not to delete the extra character while changing the line number.

To install the MC, first, be sure that the REM statement in line 9994 contains 128 spaces (or any character), then delete the "REM" in line 9993. Next as an immediate command, enter "GO TO 9990", then replace the "REM" in line 9993 or delete the "GO TO 9990" and, if you like, delete lines 9981 through 9989.

And you're ready to go! Just enter "GO TO 9990" and enter the string you wish to search for. This routine will print to the screen the numbers of all the lines in your program that it appears in--in less than two seconds even for a 30k program.

This routine can be saved on tape and merged at the bottom of any program under development where it may be useful. One word of caution, do not bring line 9994 down to edit because it will no longer work and the machine code will have to be relocated in the REM statement.

I hope this routine will be of use to you.

Thanking you for all the tips you have given me, I am

SINCERELY YOURS,

Walter V. Hattery

Fig.1

```

9990>? REM # M.C. Find Routine #
9981 REM
To find a string of characters
within a program, enter the
desired string, keeping in mind
that this routine distinguishes
between lower and upper case
letters and that BASIC command
words are in the form of tokens
and must be entered as such.
This routine will then print to
the screen the line numbers that
the string appears in. It does
NOT print duplicate numbers when
the string appears more than
once in a line.
9982 REM
If the string contains "Don't
care" characters then replace
them with the copyright mark,
"©" (keyed in as ASCII), which is
used as a "wild card" character.
As many contiguous ©'s as needed
may be used inside the string.
Using them on the ends is not
necessary and may result in the
string being missed when it is
near the end of a line.
9983 REM User=9990:USR 9990:POKE
9984:USR:REM GO TO 9990

```

Fig.2

```

9984>REM #CATS LLIST LLIST LLIST
FOR N=USR:RESTORE ? FOR LLIST ME
FOR Q=RESTORE:UNTIL GO SUB EVAL
? LLIST:PRINT? LLIST # RESTORE
+ FROM RETURN CAT RETURN ? STR#
STEP STR# <>? RETURN ©(PEEK R
9985:PRINT## FROM RETURN USR RET
URN ?(IGN ? RETURN ©(PEEK TAN
STR# STR#
9986:UNTIL? FROM FROM NEW ? RETURN ?
UNTIL?<><><><>
9987>INPUT "FIND ";LINE I#:IF
" THEN GO TO 9989
9988>UNTIL ?41:POKE 23640+PEE
9989>UNTIL-LIN I#-1:POKE 23709,?4
9990>PRINT (9994/9990):POKE 23720
9991>UNTIL (9994/9990):POKE 23681,LIN
9992>CLS:PRINT "string ";I#;
" found in line: ";
9993>RANDOMIZE USR USR
9994>PRINT "Entire program see
pored."

```

Fig.3

```

9981 DATA 49,83,99,84,3,205,205,
209,70,39,79,99,84,35,95,95,209
9982 DATA 25,235,235,213,197,209
,33,129,92,76,207,41,176,92,24,6
9983 DATA 205,35,35,35,35,35,24,
1,205,35,209,40,106,204,14,40
9984 DATA 236,254,10,40,207,254,
21,32,4,103,103,103,201,26,204
9985 DATA 187,40,32,199,32,207,2
4,207,35,35,35,35,35,106,204
9986 DATA 14,40,215,204,10,40,19
2,204,21,40,106,20,204,107,40,3
9987 DATA 199,32,199,35,14,0,19,
10,209,193,199,209,136,63,62,62
9988 DATA 215,33,136,92,62,32,21
0,195,230,7,204,7,32,246,24,199
9989 RESTORE 9981:FOR N=USR TO
USR+127:POKE Code:POKE N,Code:
NEXT N:STOP

```

Z-80 Mnemonic	Hex	Dec.	Pg 1
LD HL, (PROG)	2000	8192	4
2001	2000	8193	
9000	9000	36864	
2000	2000	8192	
JR CONTINU	0100	256	
POP HL	0100	256	
POP HL	0100	256	
POP HL	0100	256	
LD B, (HL)	0100	256	
INC HL	0100	256	
LD C, (HL)	0100	256	
INC HL	0100	256	
LD E, (HL)	0100	256	
INC HL	0100	256	
LD D, (HL)	0100	256	
INC HL	0100	256	
PUSH FF	0100	256	
PUSH FF	0100	256	
POP FF	0100	256	
POP FF	0100	256	
PUSH FF	0100	256	
PUSH FF	0100	256	
POP FF	0100	256	
POP FF	0100	256	
LD A, (DE)	0100	256	
LD B, (DE)	0100	256	
JR CHKCHR1	0100	256	

NEWLIN
REENTRY
CONTINU

MATCH

Fig. 4

Z-80 Mnemonic	Hex	Dec.	Pg 2
POP HL	0100	256	
INC HL	0100	256	
INC HL	0100	256	
INC HL	0100	256	
INC HL	0100	256	
INC HL	0100	256	
INC HL	0100	256	
JR AFTERNO	0100	256	
POP HL	0100	256	
INC HL	0100	256	
PUSH HL	0100	256	
DEC HL	0100	256	
LD A, (HL)	0100	256	
CP 00	0100	256	
JRZ SKIP6B	0100	256	
CP 00	0100	256	
JRZ NEWLIN	0100	256	
CP 14	0100	256	
JRNZ LDFCHR1	0100	256	
POP BC	0100	256	
POP BC	0100	256	
LD A, (DE)	0100	256	
LD B, (DE)	0100	256	

REMATCH
AFTERNO

Fig. 5

QUIT

TOBASIC
LDFCHR1
CHKWLD1

Z-80 Mnemonic	Hex	Dec.	Pg 3
127d 0	7F	127	
JRZ CHKMOR	00	40	
32d 20h	00	320	
CP (HL)	00	1000	
JRNZ REMATCH	00	1000	
-29d E3h	00	227	
JR CHKMOR	18	2074	
27d 1Bh	18	2074	
INC HL	00	305	SKIP6B
INC HL	00	305	
INC HL	00	305	
INC HL	00	305	
INC HL	00	305	
LD A, (HL)	7F	1	NXTCHR2
CP 00	00	256	
14d	00	14	
JRZ SKIP6B	00	40	
CP 00	00	256	
-11d F5h	00	40	Fig. 6
13d	00	13	
JRZ MATCH	00	40	
-64d 00h	1	256	
CP 1F	01	31	
31d	00	40	
JRZ MATCH	00	40	
-88d 8Ch	1	256	
LD A, (DE)	1A	1	LDFCHR2
CP 7F	7F	127	CHKWLD2
127d 0	7F	127	
JRZ CHKMOR	00	40	
3	33	3	

Z-80 Mnemonic	Hex	Dec.	Pg 4
CP (HL)	00	100	
JRNZ MATCH	00	100	
-76d B4h	00	100	CHKMOR
INC HL	00	100	Mask
LD C, 0	00	14	Color
INC DE	00	100	
DJNZ NXTCHR2	10	100	
-27d E5h	00	100	
POP BC	01	140	
POP BC	01	140	
CALL PUT_BC	00	100	Fig. 7
178d	00	140	
LD A, 00	00	140	
RST 10	00	140	
LD HL, POSN (2)	01	140	
LD A, 00	00	140	
RST 10	00	140	PANTSP
LD A, (HL)	01	140	
AND 7	00	140	
CP 7	00	140	
JRNZ PANTSP	00	140	
-10d F6h	00	140	
JR REENTRY	00	140	
-1B1d B7h	00	138	

How to store recipes in your home computer. -This one's easy:

Step One:
Remove the screen and all the microchips and wires and stuff.

Step Two:
Insert recipes.

S O R E

BEGINNER'S CORNER

From time time to time, I've given Mark questions which reflect my status as a pre-beginner computer whiz. At the January meeting, Mark asked the questions from the rostrum. They received a surprising response from the attendees - evidently, I'm not the only pre-beginner - and even some of our acknowledged experts contributed. Flushed with success, I presented Mark a list of questions at the February meeting. Again, the same kind, interested response from members in attendance. Mark suggested that I prepare a summary of the questions and answers for the NL so those not in attendance would be aware of our little question and answer session.

JANUARY

Q. What is the maximum memory of the 2068?

A. The 2068 has 38K built-in, but memory may be expanded to 156K.

Q. Is there an accounting program in the library?

A. No, but perhaps someone in the group will let you copy a public domain program. (No one has volunteered, to date.)

Q. Can ROM be added externally?

A. Yes, an EPROM can be added. An EPROM is self-starting (auto-loading), so it doesn't require loading.

Q. How do you put a program on an EPROM?

A. It is burned in, using special equipment.

Q. Do you have to identify a specific printer before you buy a modem?

A. No, but be very careful about computer-modem and computer-printer matches.

Q. How many 2068 screen pages does 1K constitute?

A. There are 748 bytes per character screen - 7912 bytes per graphic screen.

FEBRUARY

Q. Ordinarily, may same interface be used with printer and modem?

A. No - most printers need a parallel IF which filters out and delivers parallel signals. Most modems need an RS-232 IF which filters out and delivers serial signals.

Q. Does a programmed EPROM replace or add to built-in computer memory?

A. No, an EPROM does not add to the built-in computer memory. It may replace ROM (address 0 and/or 16) and it may replace RAM (address 45).

Q. How many pins of an EPROM actually enter (contact) the computer?

A. All 28 pins - 8 are data lines, 16 or less are address lines, and the remaining pins are for timing functions - to insure that the computer is quiet when it should be and performs the right functions at the right times.

Q. Can port be added to rear of the computer to allow use of one or more EPROMS?

A. Yes, EPROMS can be added with an expansion board.

Q. What limits the memory capacity of the 2068? It appears as though memory capacity would be infinite.

A. Actually, memory capacity of a 2068 is infinite, but the process is complex, difficult, and costly. After the 2068 has

been upgraded to 156K memory, the process of adding additional memory usually is not practicable. Discs (a form of endless loop) allow the 2068 to operate programs normally requiring memory in excess of 156K, although a disc does not technically add memory.

Gene Carbonneau

DOMSDOS

An Operating System for the 1000 and 2068!

From LIST, last year.

One of our new members, Don Ross (formerly a CEO of a large Computer Corporation and now engaged as Manager of Previously Owned Vehicle Dispositions for Montauk Studebaker) has provided us with this BASIC listing. He obtained a pre-release listing from one of the British magazines.

DOMSDOS is a complete DOS, written in BASIC, which, it is claimed, will run on any U.K. Domestic (thus DOMS) microcomputer. There may be an error or two in the transcription, as I got an error message (Syntax Error) when I tried to RUN it. If any member develops extensions to the CCP code shown here, please let us know. A 1000/UNIX i/f would be a good place to start.

```

10 REM "DOMSDOS"
20 REM DISKS OPERATION SYSTEM FOR 2068 AND 1000
30 REM COMMITTED BY MARK FISHER
40 REM ABETTED BY L.I.S.T.
50 REM WILL ADAPT TOO ALL MACHINES AND MASS STORAGE DEVICES
60 REM FOR 2068 ADD ON ERROR GOTO 90
70 LET Z=50
80 GO SUB 9000
90 CLS
100 PRINT "      DOMSDOS"
110 PRINT "      VERSION 13"
120 PRINT "(C) COPYRIGHT STATE HATCHERIES, 1984"
130 PRINT ",,,"
140 REM CCP ROUTINES
150 PRINT ">A:"
160 INPUT A$
165 LET S=INT (RND*(C/5))*5
180 PRINT ">A:";
190 INPUT A$
200 PRINT A$;"?"
210 PAUSE RND*100
220 GO SUB 8000
230 PRINT D$(OX TO NX)
235 PRINT
240 IF RND<.1 THEN GO TO 90
250 LET S=S+1
260 IF S>C THEN LET S=1

```

```

270 IF RND<.5 THEN GO TO 165
280 GO TO 180
8000 LET NX=0
8010 FOR X=1 TO S
8015 LET OX=NX+2
8020 LET NX=OX+CODE D$(OX-1)-2
8030 NEXT X
8040 RETURN
8999 STOP
9000 LET D$=" ,CAN'T CONTINUE ERROR,FRANKLY CAN'T CONTINUE ERROR,
CAN'T TAKE ANY MORE ERROR,BDOS ERROR ON P,DISC DRIVE INOPERABLE
,MAIN BUS FAILURE ERROR"
9010 LET D$=D$+" ,ARE YOU SURE?,I MEAN ARE YOU REALLY SURE?,COMMA
ND NOT RECOGNISED,REBOOT AND RETRY,DIVISION BY ZERO ERROR,DIVIS
ION BY ZERO ERROR AGAIN"
9020 LET D$=D$+" ,PLEASE RECONSIDER,PLEASE PLEASE RECONSIDER,PRES
SING WRONG KEYS ERROR,FIRE ON THE MAIN BOARD ERROR,YOU CAN'T BE
SERIOUS ERROR"
9030 LET D$=D$+" ,TRY KEYING HELP,KEY SYSGEN TO RECOVER,ILLEGAL Q
UANTITY-CALL POLICE"
9040 LET D$=D$+" ,OUT OF MEMORY,OUT OF SIGHT,OUT OF MIND,TOO MUCH
,TOO COMPLEX,MUCH TOO COMPLEX,NEXT WITHOUT FOR,FOR WITHOUT NEXT
,NEXT WITHOUT NEXT"
9050 LET D$=D$+" ,GOTO UNDEFINED,GOTO JAIL DONOT PASS GO DONOT CO
LLECT $200"
9060 LET D$=D$+" ,BAD SUBSCRIPT,NAUGHTY SUBSCRIPT,EVIL SUBSCRIPT,
SYNTAX ERROR,SYNTAX CURRENTLY 15%"
9070 LET D$=D$+" ,FILE LOCKED,FILE MISSING,FILE MISSING BELIEVED
KILLED IN ACTION"
9080 LET D$=D$+" ,LANGUAGE NOT AVAILABLE,LANGUAGE NOT PRINTABLE,U
NSPEAKABLE ERROR"
9090)LET D$=D$+" ,PROGRAM TOO LARGE,PROGRAM TOO SMALL,RANGE ERRO
R-AIM HIGHER,WRITE PROTECTED,REALLY WRITE PROTECTED,READ PROTEC
TED,READ AND WRITE PROTECTED,DATA NOT WORTH READING FRANKLY"
9100 LET OX=1
9110 LET C=0
9120 FOR X=2 TO LEN D$
9130 IF D$(X)=", " THEN GO SUB 9500
9140 NEXT X
9150 RETURN
9500 LET D$(OX)=CHR$(X-OX)
9506 LET C=C+1
9510 LET OX=X
9520 RETURN

```

Note the method of parsing D\$. It saves 40% of memory used by an equivalent array. Lines 9100 - on insert pointers to next entry. To select an entry, lines 8000 - 8040 step through D\$ for S steps, and return with start and end addresses of the desired prompt. MF

```

CRYPTOGRAM:
NFL PHCCHT MYRKVWT KCVR-VZN MVTN

NFL ELPTAYOT TV SHOW DCHW-VXX

PVCCHET NFHN XYCAT XEVS NLGHT

TFVZCP DHW LGNEH NHGLT.

```

Mortgage Amortizer

by Al Strauss

If you bought a house in the last eight years, this program will show you what your payments would be under the new rates.

THE IMPORTANT DATA ONE NEEDS FROM A MORTGAGE LOAN PROGRAM IS THE AMOUNT OF INTEREST PAID IN ANY CALENDAR YEAR. THIS LOAN AMORTIZATION PROGRAM IS STRUCTURED TO FURNISH THIS INFORMATION.

YOU ARE ASKED TO FURNISH THE FOLLOWING DATA:

- (1) THE AMOUNT OF THE LOAN
- (2) THE NUMBER OF YEARS
- (3) THE RATE OF INTEREST

THE PROGRAM COMPUTES THE MONTHLY PAYMENT. YOU ARE NOW ASKED IF YOU WANT TO AMORTIZE. IF YOU PRESS CONT. YOU ARE ASKED THE NUMBER OF PAYMENTS MADE IN THE FIRST YEAR AND THE YEAR THE LOAN IS ORIGINATED. THE PROGRAM WILL NOW COMPUTE THE PAYMENTS MADE IN THE FIRST YEAR AND TOTAL THE INTEREST FOR THE NUMBER OF PAYMENTS MADE. YOU ARE NOW ASKED TO PRESS CONT. FOR THE FOLLOWING YEAR OR MAY CHOOSE TO COMPUTE THE YEARLY TOTALS. BY ENTERING GO TO YEARLY.

```
10 PRINT AT 18,1;"MORTGAGE"
20 INPUT B
25 LPRINT "MORTGAGE ";B
30 PRINT AT 18,1;"YEARS "
40 INPUT Y
45 LPRINT "YEARS ";Y
50 PRINT AT 18,1;"NO.PMTS PER
YR"
60 INPUT Q
65 LPRINT "PMTS PER YR. ";Q
70 PRINT AT 18,1;"INTEREST RAT
E "
80 INPUT R
85 LPRINT "INT. RATE ";R
90 LET N=Y*Q
100 LET I=R/100/Q
110 LET P=B*I/(1-(1+I)**-N)
120 LET P=INT (P*100+.5)/100
125 PRINT "TO TRY OTHER RATES O
R YEARS OR AMOUNTS ENTER GOTO 7
00 "
130 PRINT AT 18,1;"PAYMENT IS $
";P;" PER MONTH"
135 LPRINT "PAYMENT $";P;" PER
MONTH"
140 PRINT AT 21,1;"PRESS CONTIN
UE FOR AMORTIZATION"
150 PRINT "HOW MANY PAYMENTS IS
T YR"
160 INPUT E
170 PRINT "ENTER YEAR OF START"
180 INPUT H
185 LPRINT "NO. OF PMTS MADE IN
";H;" "
190 LET K=0
200 LET J=0
210 LET S=0
219 LPRINT "NO.";TAB 4;"INT";TA
B 14;"PRIN";TAB 22;"BALANCE"
220 PRINT "NO.";TAB 4;"INT";TAB
14;"PRIN";TAB 22;"BALANCE"
230 LET Z=P-(I*B)
240 LET Z=INT (Z*100+.5)/100
250 LET U=P-Z
260 LET B=B-Z
```

```
270 LET J=J+U
280 LET K=K+1
290 LET S=S+1
300 PRINT K;TAB 4;U;TAB 14;Z;TA
B 22;B
302 LPRINT K;TAB 4;U;TAB 14;Z;T
AB 22;B
305 IF S=E THEN PRINT AT 18,2;"
FOR YEARLY TOTALS GOTO 600"
310 IF S=E THEN PRINT AT 20,2;J
;" TOTAL INTEREST ";H;AT 21,2;"P
RESS CONT. FOR ";H+1
314 IF S=E THEN LPRINT "-----
-----"
315 IF S=E THEN LPRINT ;J;" TOT
AL INTEREST ";H
316 IF S=E THEN LPRINT "-----
-----"
320 IF S=E THEN GOTO 340
330 GOTO 230
340 LET H=H+1
350 PRINT "NO.";TAB 4;"INT";TAB
14;"PRIN";TAB 22;"BALANCE"
355 LPRINT "NO.";TAB 4;"INT";TA
B 14;"PRIN";TAB 22;"BALANCE"
360 LET U=0
370 LET S=0
380 LET Z=P-(I*B)
390 LET Z=INT (Z*100+.5)/100
400 LET U=P-Z
410 LET B=B-Z
420 LET J=J+U
430 LET K=K+1
440 LET S=S+1
445 LPRINT K;TAB 4;U;TAB 14;Z;T
AB 22;B
450 PRINT K;TAB 4;U;TAB 14;Z;TA
B 22;B
460 IF S=12 THEN PRINT AT 20,2;
J;" TOTAL INTEREST ";H
464 IF S=12 THEN LPRINT "-----
-----"
465 IF S=12 THEN LPRINT AT 20,2
;J;" TOTAL INTEREST ";H
466 IF S=12 THEN LPRINT "-----
-----"
470 IF S=12 THEN PRINT AT 21,2;
"PRESS CONTINUE FOR ";H+1
480 IF S=12 THEN GOTO 340
490 IF K=N-1 THEN PRINT "FINAL
PAYMENT IS ";INT (100*B*(1+I)+.5
)/100;AT 20,2; INT (100*(J+B*I)+
.5)/100;" TOTAL INTEREST ";H
497 IF K=N-1 THEN LPRINT "FINAL
PMT IS ";INT (100*B*(1+I)+.5)/1
00
498 IF K=N-1 THEN LPRINT INT (1
00*(J+B*I)+.5)/100;" TOTAL INTER
EST ";H
500 IF K=N-1 THEN STOP
510 GOTO 380
600 PRINT "YEAR";TAB 5;"PRIN";T
AB 13;"INT";TAB 21;"BAL YR END"
605 LPRINT "YEAR";TAB 5;"PRIN";
TAB 13;"INT";TAB 21;"BAL YR END"
610 LET Q=(P-(B*I))*(((1+I)**12
)-1)/I
615 LET Q=INT (Q*100+.5)/100
620 LET X=(12*P)-Q
621 LET X=INT (X*100+.5)/100
625 LET B=B-Q
626 LET B=INT (B*100+.5)/100
628 IF B<1 THEN LET Q=Q+B
629 IF B<1 THEN LET B=0
650 PRINT H;TAB 5;Q;TAB 13;X;TA
B 21;B
651 LPRINT "-----
-----"
652 LPRINT H;TAB 5;Q;TAB 13;X;T
AB 21;B
655 LET H=H+1
657 IF B=0 THEN STOP
660 GOTO 610
670 STOP
```



```

700 PRINT "WHAT WOULD THE PAYME
NT BE? ", "IF WE CHANGED THE INTE
REST RATE", "IF WE CHANGED THE YE
ARS"
701 PRINT "IF WE CHANGED THE AM
OUNT OF THE LOAN"
710 PRINT "TO CHANGE RATE ENTER
DIRECT COMMAND LET I=NEW RATE/1
200"
711 PRINT "THEN ENTER GOTO 750"
720 PRINT "TO CHANGE YEARS ENTE
R DIRECT COMMAND LET N=YEARS*12"
721 PRINT "THEN ENTER GOTO 750"
730 PRINT "TO CHANGE THE AMOUNT
OF THE LOAN ENTER DIRECT COMMAN
DLET B=NEW AMOUNT"
731 PRINT "THEN ENTER GOTO 750"
750 LET P=B*I/(1-(1+I)**-N)
755 LET P=INT (P*100+.5)/100
760 PRINT " PAYMENT IS NOW=" ;P
765 PRINT "TO AMORTIZE GOTO 130
"
800 STOP
9000 SAVE "MTGE LOAN"
9950 RUN

```

```

MORTGAGE 5000
YEARS 5
PMTS PER YR. 12
INT. RATE 9
PAYMENT $103.79 PER MONTH
NO. OF PMTS MADE IN 1982, 1
NO. INT PRIN BALANCE
1 37.5 66.29 4933.71
-----
37.5 TOTAL INTEREST 1982
-----
NO. INT PRIN BALANCE
2 37 66.79 4866.92
3 36.5 67.29 4799.63
4 36 67.79 4731.84
5 35.49 68.3 4663.54
6 34.98 68.81 4594.73
7 34.46 69.33 4525.4
8 33.94 69.85 4455.95
9 33.42 70.37 4385.18
10 32.89 70.9 4314.28
11 32.36 71.43 4242.85
12 31.82 71.97 4170.88
13 31.28 72.51 4098.37
-----
410.14 TOTAL INTEREST 1983
-----

```

CRYPTOGRAM Solution:

JHT T200 TU0-W0J2 2Y08W03 2AJLAD JHT
 THE DALLAS COWBOYS BLOW-OUT COST THE
 REDSKINS SO MANY PLAY-OFF DOLLARS THAT
 FOLKS FROM TEXAS SHOULD PAY EXTRA TAXES

32K BANKED MEMORY

Plugs into the TS2068 cartridge slot. This 32K ram is much more than just a memory. An on board battery keeps it alive even when you turn the computer off. Switch selectable for use in the DOCK or EXROM banks with NO mods to the computer. Write protect switch lets you use memory like an EPROM. Run your own plug-in BASIC programs! Extend capacity by 32K. Reduce or eliminate tape loading time. Detailed instructions include utilities for bank switching and data transfers. The perfect tool for extending your 2068's memory or for writing and debugging EPROM software. A beautiful board: solder masked, gold tipped, satellite grade anti-static coating. Very dependable and rugged. Battery included. Only \$109.95

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22 new commands for your TS1000! Advanced screen utilities make your ZX81 look more like a monochrome 2068. Includes READ, DATA, RESTORE, FILL MOVE, LEFTS, MIDS, RIGHTS, IN and OUT commands give you Basic control of I/O mapped peripherals which were previously accessed only in machine code. Extended Basic does not require the use of PEEK, POKE, or USR. Takes up just 3.5K of memory. 24 page manual, sample listings included. Unbelievable speed, excellent documentation. NO USR CALLS!! Only \$19.95

WATOR * ZX81!

Thanks for your PAID AD!

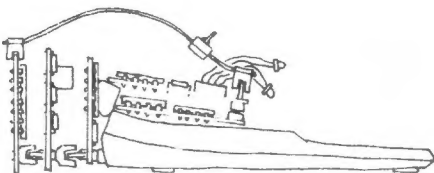
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- *Pseudoscope for TS2068—A serial bit stream analyzer which mimics the action of an oscilloscope. Use to graphically portray low frequency digital signals in a horizontally scrolling graph. Program lets you store and compare samples. Print them out on a 2040 printer. Adjustable sample rate, 60hz timing dots are plotted with your input sample. Pseudoscope lets you SEE morse, rtty, serial keyboard signals, etc. as the computer sees them. Very useful in program development or in optimizing interface hardware. Tape/instruction book/full disassembly: \$16.95
- *Computer I/O Data Communications—Lets your 2068 speak to your ZX81! Use your TS1000 (must have 64K ram) to store data for your 2068. Send commands which transfer data back and forth, or cause the TS1000 to execute your own special Basic commands. Now 2068 owners can put their old 1000's back on line. Software includes operating systems for both computers. Requires 2 port boards (one for each computer). Tape/instructions: \$16.95.



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Meandering MODEM Musings

Mark Fisher

The club made a second group buy of MODEMs from Ed Grey. As they had run out of their original stock of tested MODEMs, they had switched to what they called a "hacker's special." They provided four boards - two "known defective," two untested - one set of cables, and a circuit diagram and hints on debugging the MODEM. As of this writing, He has 25 more sets available @ \$16.00+\$2.00 per week + \$2.50 postage. (213) 516-6648 Noon to 9:00 PM PST.

I've seen a number of MODEMs over the last few weeks, and there are a few items of information that I'd like to pass along.

1. If you switch the power source polarity, you will blow your MODEM. This is not the end of the world. There is only one IC that sees the full 9 volts, IC 9, a dual op-amp line driver. If you think you've blown your MODEM in this way, listen on the telephone, and tell the MODEM to send its carrier tone. If you hear a very faint tone, this chip may be bad - try a replacement. It costs 67 cents.
2. Lack of a carrier tone may also stem from open windings in the output transformer. DC resistance of the transformer should run around 110 ohms on the MODEM side, and 60 ohms on the phone side.

3. Inspect! There are five jumpers on the back side of the board, and five cuts. One of the jumpers may have come adrift. If the MODEM never has worked properly, the cuts may not have been made, or cut across too many traces.
4. Inspect #2: Check continuity of the leads on the ribbon cable - as the cable works in the termination, connections can break. If a conductor has broken, it's not the end of the world: Either shorten the cable and re-stake, or use one of the four unused lines in the ribbon - see below.

I've revived 6 more of the MODEM boards. These MODEMs don't have cables, so you'll have to fabricate your own. Here is the layout of the cable:

Ribbon Position	Function	Back Plane Position
		A=comp. side
1	+5v	1B
2	A0	7B
3	RD	16A
4		
5	D7	1A
6	WR	17A
7	D6	7A
8		
9	D4	10A
10	D3	9A

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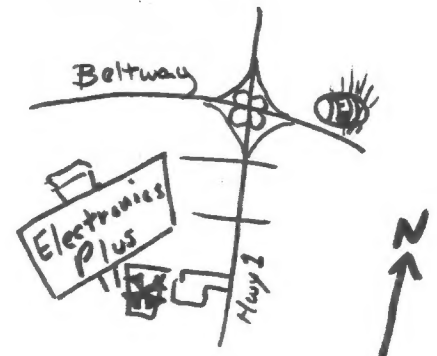
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11	D5	8A
12	D2	6A
13	D1	5A
14	D0	4A
15		
16	GND	4B
17	GND	5B
18	A6	20B
19	A7	19B
20	A3	10B
21	A2	9B
22		
23	A1	8B
24	I ORQ	15A
25	A5	21B
26	A4	22B

Hacking With MSCRIPT

Mark Fisher

I've always been a little jealous of word processors that can format output in two columns per page. Wordstar is a case in point. Many can't; such as MacWrite. Good old MSCRIPT can, however (though not on the screen). I realized this as Sarah was telling me how the Wang word processor does the trick.

Since MSCRIPT has commands to put different page headings on even and odd pages, it is a simple matter to establish an Odd page Top heading (using >OT=prntr cmd) that sets the printer's left margin at 000, and an Even page Top heading (using >ET=prntr cmd) that sets the left margin of the second column to halfway across the paper. The OT and ET commands add two line feeds to each page, so you may want to increase page length by two. If using single sheet paper, just reinsert the sheet for the second column.

If your printer supports it, it is even possible to insert commands to reverse the direction of the line feed, return to top of page (TOF), and resume printing. This works best with continuous feed paper. Watching the paper zigzag through the platen can be a little suprising! For the Prowriter, the commands are:

ESC-r	Reverses line feed
FF	Advance to Top Of Form
ESC-f	Set forward line feed
(and ESC-L040)	to set the new left margin.

(Note that lines 4,8,15, and 22 are unused. If you have a problem with other lines of the cable, they can be pressed into service, with jumpers on either end to put the needed signal where it belongs.)

The computer end can be wired on to a conventional card edge connector and feed through, or piggybacked on to an existing connector, using a dual line pin termination at the computer end. The original cable is beautifully shielded, but that kind of cable is hard to get, and I haven't had any problems running with standard open ribbon cable. Ditto for the ferrite cores on each line in the "stock" cable.

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The official contact person for CATS is JULES GESANG!

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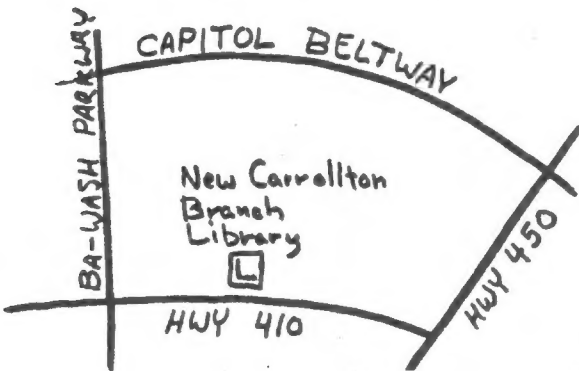
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